

This document is a translation of the original document, written in Spanish for Comisión Estatal de Servicios Públicos de Tijuana (CESPT), the water and wastewater operating agency for the municipalities of Tijuana and Playas de Rosarito, Baja California, Mexico.

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APPENDIX I

Potable Water System

Appendix I

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Table I-1 Colonias (Neighborhoods) without Potable Water Service - Areas with Low Pressure and Recurring Leaks by Operation District					
District	Colonias (Neighborhoods) without water service	Low Pressure Area		Recurring leaks	Immediate Rehabilitation
		Year round	During summer		
Ing. Juan ojeda Robles	(1) 10 de mayo (7) Granjas Familias unidas (8) Insurgentes	(12) Los Álamos (13) Nueva Tijuana	(2) Altabrisa (6) Ejido Chilpancingo (14) Otay Jardín (15) Otay Universidad (16) Tomas Aquino (17) Zona del Río	(3) Buena Vista (4) Ciudad Industrial (5) Cuauhtemoc (9) Libertad (10) Lomas Taurinas (11) López Leyva Aeropuerto	(9) Libertad (12) Los Álamos
Paraiso			(19) Ignacio Ramírez (23) Terrazas del Rubí (24) Valle Sur	(18) Fraccionamiento Rubí (20) Obrera (21) Sonoita (22) Sonora	(18) Fraccionamiento Rubí (20) Obrera
Independencia		(26) Ciudad Jardín (27) Francisco Villa		(25) Altamira (27) Francisco Villa (28) Zona Centro (29) Zona Norte	(28) Zona Centro (29) Zona Norte
Matamoros	(31) Ejido Francisco Villa (33) El Pipila (36) Héroes de la Independencia (43) Tierra y Libertad (45) Terrazas del Valle (46) Lomas del Valle (47) El Niño (48) Ejido Maclovio Rojas	(34) Florido Primera Sección (38) Mariano Matamoros Sur (39) Ejido Matamoros		(30) Ampliación Guaycura (32) El Lago (35) Guaycura (37) Infonavit Presidentes (40) Loma Dorada (41) Pórticos Lagos (42) Libramiento Zona AO (44) Torres del Lago	(32) El Lago (37) Infonavit Presidentes (44) Torres del Lago
Reforma (*5)	(49) 3 de octubre (50) Amparo Sánchez		(60) Reforma P/A	(51) Camino Verde (52) Campos (53) Castro Green (54) Infonavit Latinos (55) Infonavit Lomas Verdes (56) Jardines de la Mesa (57) Lomas Conjunto Residencial (58) Sanches Taboada (59) Villas de B. C.	(58) Sanches Taboada
Rosarito (*6)	(64) Mina (65) Plan Libertador (66) Ley Servicio Social (67) Ampliación Plan Libertador (68) Constitución (69) Ampliación Leyes Reforma		(61) Lucio Blanco (62) Constitución (63) Mazatlán (70) Magisterial (71) Labazo		(72) Zona Urbana (Poblado)

Table I-2 CESPT Maintenance and Operation Manuals	
Procedure	Objective
Office of Operational Control	
Aqueduct Inspection	The main objective is greater efficiency and speed in performing aqueduct inspection. It also aims to standardize norms and enable new personnel to more easily become familiar with and involved in performing inspections.
Special Studies	This procedure provides information on special studies activities, with step-by-step descriptions of the types of tasks performed in both the office and the field.
Potable Water Installations Inspection	This procedure provides detailed information on the activities performed in the inspection of potable water installations, primarily tanks, pressure-release stations, and pressure reducers. It describes, step by step, the methodology to follow in the office and field.
Potable Water Systems Inspection	Its basic purpose is to provide a detailed description of a sequence of steps to follow in performing an inspection of potable water systems by <i>colonias</i> (neighborhood). It includes a general analysis of all installations that form part of the water supply, describing the methodology and format of tasks performed in the office and the field. Its purpose is to achieve greater efficiency in our procedures and to identify the areas involved in their performance, while optimizing time, resources, and effort.
Detection of Invisible Leaks	To supply information and knowledge on methods and ways for detecting invisible leaks, the use of pipe-locator equipment, the use of various machines to detect invisible leaks and interpret data, managing data on identified leaks for their rapid repair, knowledge of the creation of hydrometric districts, how to find the percentage of water lost in those districts by comparing macro-metering to micro-metering.
Macro-metering and Pitometry	To supply information and knowledge on methods and ways for measuring flows and on equipment for taking measurements.
Potable Water Department (Departamento de Agua Potable)	
Procedures in the Area of Telemetry and Automation.	Establish the methods for monitoring the Tijuana and Playas de Rosarito telemetry system, through control of major re-pumping equipment, remote-control valves. Indicate the level of reduction of personnel working in tanks and pumping stations in those cities, avoiding spills, equipment failures, and water shortages, thus improving the operation of the system and the continuity of 23.88 hr service.
Procedures for Treatment of Potable Water at the Abelardo L. Rodríguez Treatment Plant	To supervise operation and maintenance of the elements involved in the procedures and/or stages for treatment of potable water, thus obtaining water of adequate quality, with the greatest output at the minimum possible cost. These objectives are achieved through five principal water treatment steps: coagulation, sedimentation, filtration, and disinfection.
Procedures for Treatment of Potable Water at El Florido Treatment Plant	To supervise operation and maintenance of the elements involved in the procedures and/or stages for treatment of potable water, thus obtaining water of adequate quality, with the greatest output at the minimum possible cost. These objectives are achieved through five principal water treatment steps: coagulation, sedimentation, filtration, and disinfection.
Procedures for Physical-Chemical Analysis of Potable Water	To analyze water samples from the potable water distribution system to determine qualitatively and quantitatively the presence of chemical and physical elements in potable water, as established by the Health Department (<i>Secretaría de Salud</i>) in accordance with NOM 127 SSA1-1994, the official Mexican regulations that establish the maximum allowable limits for physical, chemical, and bacteriological characteristics in treated potable water.
Procedures for Bacteriological Analysis of Samples from the Potable Water Distribution System	The routine bacteriological analyses of water samples is based on tests for the presence of indicator organisms, which include bacteria that are not always pathogenic. It is impractical to routinely analyze water samples for pathogens because of complications and delays in the applicable procedures.
Procedures for Analysis of Pesticides by Gas Chromatography	The official Mexican regulation (<i>Norma Oficial Mexicana</i>) NOM-AA-71-1981 establishes a method for detecting organochlorine pesticides using gas chromatography on plain and waste water. The methodology used is based on this regulation, with modifications to the form and volume of extraction, adapting the method to existing equipment

Table I-2 CESPT Maintenance and Operation Manuals	
Procedure	Objective
Office of Operational Control	
Procedures for Chemical Analysis of Potable Water Using Spectroscopy	Because of the diversity of chemical parameters that can be analyzed using this method, one single methodology is not applied invariably to all cases. However, the various specific methods consist basically in combining diverse reagents to generate a particular molecular species for the analyzed parameter, which only absorbs radiation in specific regions of the spectrum as a function of the substance's concentration. Finally, using a visible and ultraviolet radiation spectrophotometer, spectrophotometry provides quantified and qualified analysis.
Department of Land Use Registry (Departamento de Catastro)	
Structural Inspection	Along with measuring and collecting data (location, leveling, and inspection), an attempt will be made to physically improve the hydraulic infrastructure by performing supplementary work to improve the condition of the system, such as reporting structures requiring work, including, among other things, re-leveling of manhole covers and removing build-up of deposits which shrinks box size
Survey of Installations and Equipment	To physically improve the hydraulic infrastructure by performing supplementary work that improves the condition of the system, such as reporting structures requiring work, including, among other things, waterproofing, painting, and sidewalk construction.
Leveling of Manholes and Valve Boxes	Along with measuring and collecting data (location, leveling, and inspection), an attempt is made to physically improve the hydraulic infrastructure by performing supplementary work to improve the condition of the system, such as reporting structures needing work, including, among other things, re-leveling of manhole covers and removing build-up of deposits which shrink box size.
Department of Electromechanics (Departamento de Electromecánica)	
Procedure for Performing Preventive Maintenance on Submersible Turbine Pumps	To establish the sequence of steps so that maintenance is performed in a standardized and organized manner.
Procedure for Performing Preventive Maintenance on Centrifuge Pumps in the Re-Pumping System	To establish the sequence of steps so that maintenance is performed in a standardized and organized manner.
Procedure for Performing Preventive Maintenance on Submersible Well Pumps.	To establish the sequence of steps so that maintenance is performed in a standardized and organized manner.
Procedure for Performing Preventive Maintenance on Electricity Substations.	To establish the sequence of steps so that maintenance is performed in a standardized and organized manner
Procedure for Performing Preventive Maintenance on Pumping Station Control Panels.	To develop a series of steps to perform preventive maintenance on electrical monitoring equipment in a standardized and organized manner.
Procedure for Performing Preventive Maintenance on Re-Pumping Station Control Panels	To guarantee the proper functioning of equipment in order to provide uninterrupted service to the community.
Procedure for Performing Preventive Maintenance on Hydropneumatic System Control Panels	To guarantee the proper functioning of equipment in order to provide uninterrupted service to the community.
Procedure for Performing Preventive Maintenance on Well Control Panels	This procedure involves all the control panels for operating wells and extracting water from aquifers.
Procedure for Mechanical Anti-Corrosion Protection) (SAND BLAST)	To prolong the useful life of special parts and steel pipe carrying potable water and wastewater.

Table I-2 CESPT Maintenance and Operation Manuals	
Procedure	Objective
Office of Operational Control	
Procedure for Manufacturing Protective Coverings for Telemetry, Control, Release, and Chlorination Stations and for all other types of CESPT Installations	To protect all CESPT equipment in the field from vandalism.
Procedure for Manufacturing Clamps from 10" up to 30" with openings from 2" up to 24"	To establish a step-by-step sequence for the manufacture of clamps to connect a variety of parts (VAEA, pipes, vents, etc.) with differing diameters.
Procedures for Repairing Steel Pipes of 20" and Connection with Asbestos Cement Pipes	To establish an organized and logical sequence of steps to repair leaks in the potable water system.
Procedures for Repairing Leaks in the Damaged (Rusted) Steel Pipes in the Potable Water System, Ranging in Diameter from 2" up to 48"	To establish the step-by-step sequence for repair of leaks in steel pipes of various diameters
Procedure for Performing Preventive Maintenance Air-Release Valves	To establish the sequence of steps to perform preventive maintenance on air-release stations in a standardized and organized manner.
Procedure for Performing Preventive Maintenance on Level Control Valves in Storage and Pressure Reduction Tanks	To establish the sequence of steps to perform preventive maintenance on float valves in a standardized and organized manner, to guarantee the optimal functioning of the equipment with the goal of supplying continuous service to the community.
Procedure for Performing Preventive Maintenance Pressure Release Valves	To establish the sequence of steps to perform preventive maintenance on pressure reductor stations in a standardized and organized manner.
Procedure for Performing Preventive Maintenance on Centrifuge Pumps in the Hydropneumatic System	To establish the sequence of steps to perform preventive maintenance on air-release stations in a standardized and organized manner.
System Maintenance Department (Departamento de Mantenimiento de Redes)	
Meter Installation	Install efficiently and according to specifications residential meters requested by customers, with the goal of increasing the number of functioning meters in order to increase the volume of metered water.
Meter Replacement	Replace meters for users who request this as well as for those who have observed that their meters are out of order, with the goal of achieving 97.18% coverage for functioning meters within the population of CESPT registered customers.
Service Framework	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas. Increase efficiency and improve service by describing the procedures and the areas that they involve; promote and disseminate the culture and custom of using the procedures as a fundamental part of the introduction of quality systems.
Disconnection and Reconnection	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas. Increase efficiency and improve service by describing the procedures and the areas that they involve; promote and disseminate the culture and custom of using the procedures as a fundamental part of the introduction of quality systems.
Inspection of Dropped Accounts	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas. Increase efficiency and improve service by describing the procedures and the areas that they involve; promote and disseminate the culture and custom of using the procedures as a fundamental part

Table I-2 CESPT Maintenance and Operation Manuals	
Procedure	Objective
Office of Operational Control	
	of the introduction of quality systems.
Perform a Blowout of Residential Potable Water Connections	Establish step by step the methodology to achieve greater work efficiency for this type of team, maintaining an ongoing procedure evaluation in order to provide better service.
Repair of Leaks in Residential Potable Water Connections	Establish step by step the methodology to achieve greater work efficiency for this type of team, maintaining an ongoing procedure evaluation in order to provide better service.
Repair of Leaks in the Potable Water System	Establish step by step the methodology to achieve greater work efficiency for this type of team, maintaining an ongoing procedure evaluation in order to provide better service.
Service Installation (intake and discharge)	Establish step by step the methodology to achieve greater work efficiency for this type of team, maintaining an ongoing procedure evaluation in order to provide better service.
Procedure for replacement of connection	Establish the necessary techniques and tools to be used by the operator or service provider to perform connection replacements, to increase productivity and optimize resources.
Procedure to Move Meters	Establish the necessary techniques and tools to be used by the operator or service provider to perform connection replacements, to increase productivity and optimize resources.
Procedure moving meter boxes	Establish the necessary techniques and tools to be used by the operator or service provider to perform connection replacements, to increase productivity and optimize resources.
Inspection of Review of Minimums	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas.
Inspection of High Consumption	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas. To increase efficiency and improve service through the description of the procedures and the areas that it involves.
Inspection of Service Type	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas. To increase efficiency and improve service through the description of the procedures and the areas that it involves.
Replacement of Cover and Curb	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas. To increase efficiency and improve service through the description of the procedures and the areas that it involves.
General Procedure for Repaving	The work crew is responsible for reporting to the scheduling and statistics department when additional jobs (refilling or patching) are required, once the potable water or sewer system service is completed; the request will be forwarded to the repaving area if it is necessary to fill in trenches or replace pavement.
Inspection of Feasibility of Additional Meters	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas. To increase efficiency and improve service through the description of the procedures and the areas that it involves.
Inspection by Review of Averages	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas. To increase efficiency and improve service through the description of the procedures and the areas that it involves.
General Inspection	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas. To increase efficiency and improve service through the description of the procedures and the areas that it involves.
Clandestine Inspection	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas. To increase efficiency and improve service through the description of the procedures and the areas that it involves.

Table I-2 CESPT Maintenance and Operation Manuals	
Procedure	Objective
Office of Operational Control	
Procedure for Supplying Fuel to Official Vehicles	Establish the methodology and format for describing the procedures involved in carrying out the scheduling of teams in the System Maintenance Department.
Radio Supervision and Support for Work Crews	Install monitoring mechanisms and at the same time, use radio as a communications tool to support the operations of the Work Crews in the field.
Perform and Analyze Leak Studies	Establish the methodology and format for describing the operational and administrative procedures to perform and analyze studies on leaks.
Service Budgets	Establish the methodology and format for describing the operational and administrative procedures to develop a service budget.
Keeping Service Areas Current	Establish the methodology and format for describing the operational and administrative procedures to keep current the service area of the hydraulic infrastructure.
Procedure for Completion of Service Requests	Identify the factors involved in the process and its possible modification or adjustment, with the goal of obtaining greater efficiency in capturing and processing information.
Procedure for Developing Requisitions for Materials	Establish a methodology for developing requisitions for materials, maintaining widely used materials in the stockpiles for field units, thus reducing to a minimum time lost when repair crews must stop work to "request materials."
Procedure for Developing Indicators District and Crew Indicators	Establish a methodology for developing indicators for the district and the work crews, identifying the factors involved in the process and its possible modification or adjustment, with the goal of obtaining greater efficiency in the generation, processing, and monitoring of information.
Procedure for Developing Requests for Work from External Shops	Establish a methodology for developing the requests for work from external shops that provide preventive and corrective maintenance of commonly used devices, machinery, and smaller equipment, in order to maintain these items in good service condition, thus reducing to a minimum time lost when the repair crew must stop work because of "out-of-order devices or equipment."
Procedure for Developing the Preventive Maintenance Program for Machinery	Establish a methodology for developing a preventive maintenance program for machinery, to maintain an adequate schedule that works to maintain devices and support equipment in good service condition, thus reducing to a minimum time lost when devices are sent to the repair shop, which affects the scheduling of service.
Supplying Fuel to Special Units	Establish the methodology and format for describing the operational and administrative procedures in CESPT work areas. To increase efficiency and improve service through the description of the procedures and the areas that it involves.
Note: These descriptions are a summary of each manual's principal goals.	

Table I-3
Works in Process of Execution by 2002, 2003 and 2004 by Japanese Credit

Number	Colonias (Neighborhood)	Population	Sample	Pump	Tank	System (m)	Conveyance (m)	Totals
		Inhab.	Item	HP	Cap. (m3)	4"-12"	14"-20"	(m)
1	03 de Octubre	19,454	4,632	150	3500	36,873	1,195	38,068
2	Buenos Aires expansion	4,213	1,003	---	---	10,023	0	10,023
3	Agraristas expansion	2,982	710	---	---	9,492	0	9,492
4	Terrazas del Valle	20,194	4,808	---	2,500	43,907	1,712	45,619
				50	1,500			
				15	1,000			
				---	500			
Subtotal	46,843	11,153	215	11000	100,295	2,907	103,202	
Number	Neighborhood	Population	Sample	Pump	Tank	System (m)	Conveyance (m)	Totals
		Inhab.	Item	HP	Cap. (m3)	4"-12"	14"-20"	(m)
1	Las Águilas expansion	7,367	1,754	40	2,000	28,627	0	28,627
				10				
2	Lomas de Rosarito	14,603	3,477	75	2,500	59,379	0	59,379
				125	2,000			
Subtotal	21,970	5,231	250	6500	88,006	---	88,006	
Potable water works, contemplated until 2003 by Japanese Credit								
Number	Neighborhood	Population	Sample	Pump	Tank	System (m)	Conveyance (m)	Totals
		Inhab.	Item	HP	Cap. (m3)	4"-12"	14"-20"	(m)
1	Lázaro Cárdenas expansion	1,945	463	10	215	2,471	0	2,471
2	Mariano Matamoros expansion	21,256	5,061	10	---	44,156	0	44,156
3	Pipila expansion	3,318	790	---	---	8,991	0	8,991
4	Ampl. Ejido Francisco Villa	11,214	2,670	---	4,000	23,136	1,146	24,282
5	Ojo de Agua-Maclovio Rojas	8,270	1,969	75	4,000	38,345	3,366	41,711
					2,000			
6	Plan Libertador de Rosarito	8,715	2,075	10	1,000	44,333	0	44,333
7	Santa Mónica Reforma	4,704	1,120	---	3,000	17,371	2,557	19,928
8	Plan Libertador expansion	11,302	2,691	30	1,000	39,795	0	39,795
9	Water meters	81,577	19,423	---	---	---	---	---
Subtotal	70,724	16,839	135	15215	218,598	7,069	225,667	
Potable water works, contemplated until 2004 by Japanese Credit								
Number	Neighborhood	Population	Sample	Pump	Tank	System (m)	Conveyance (m)	Totals
		Inhab.	Item	HP	Cap. (m3)	4"-12"	14"-20"	(m)
1	Cuesta Blanca Ley del Servicio Ci	882	210	---	---	6,669	0	6,669
2	Tecolote Tercera Sección	714	170	15	250	5,102	0	5,102
3	Granjas Amparo Sánchez	1,894	451	---	---	11,593	0	11,593
4	Viñedos Casa Blanca	3,721	886	---	---	12,005	0	12,005
5	Maclovio Rojas expansion	1,575	375	50	2,000	26,168	0	26,168
				30	250			
6	Water meters	66,746	15,892	---	---	---	0	0
Subtotal	8,786	2,092	95	2500	61,537	0	61,537	

Name of Tank	Physical State	Type	Elevation (m)	Year of Construction	Capacity (m ³)	Dimensions			
						Diameter	Length	Width	Height
Aguaje de la Tuna	1	se	218.00	1982	30,000				
Otay	1	s	191.00	1992	20,000				
Cerro Colorado	1	s	223.00	1991	20,000				
Calafia	1	s	52.00	1993	8,000				
Sánchez Taboada	1	s	360.00	1988	8,000				
Panamericano	1	s	362.14	1987	8,000				
Villa Fontana Parque	1	s	260.00	1998	7,000				
Aeropuerto	1	s	144.00	1993	5,000				
Murua	1	s	136.00	1993	5,000		35.20	35.20	4.60
Rubí (Sarh)	1	s	286.36	1982	5,000				
Obrera 3 Sección	1	se	264.00	1993	5,000				
Alba Roja	1	s	75.95	1993	5,000				
Playas 2	1	s	170.00	1992	5,000		35.35	35.35	5.00
Morelos	1	se	59.00	1968	5,000				
Herrera	1	se	144.00	1968	5,000				
Ejido Mazatlán	1	s	52.22	1993	5,000				
Reforma p/b	1	se	216.00	1990	4,500				
Camino Verde 3	1	se	323.00	1995	4,500				
Constitución p/m	1	s	87.00	1999	4,000				
Nueva Aurora	1	s	265.58	2000	3,500				
Tanque 1 Villa del Sol	1	s	222.80	2001	3,500				
Loma Bonita	1	s	299.70	2000	3,000				
Pórticos San Antonio	1	s	294.50	1998	3,000				
Florido	1	s	224.00	1987	3,000		35.5	20.48	4.57
Lago Cuadrado	1	se	144.96	1981	3,000		41.60	41.33	3.00
Tanque 2 Villa del Sol	1	s	286.40	2001	2,800				
Playas 1	1	se	115.00	1968	2,700	21.2			7.5
Independencia	1	s	93.98	1968	2,700				
Florido 4 Sección	1	s	200.00	1997	2,500		32.46	16.3	5.1
Las Águilas	1	s	175.00	1999	2,500				
Constitución p/a	1	s	120.34	1999	2,500				
Libramiento oriente	1	s	210.00	1992	2,000				
Francisco Villa	1	s	196.20	1992	2,000		25.20	20.30	5.20
Ciudad Jardín	1	s	167.00	1992	2,000				
Mirador	1	s	155.00	1992	2,000				
5	1	e	240.00	1968	2,000				
Ejido Matamoros	1	s	292.91	1997	2,000		20.06	25.00	5.00
Pipila	1	s	249.00	1998	2,000		30.25	15.32	5.00
Camino Verde 2	1	s	215.00	1995	2,000		25.00	20.00	5.00
Alfa Panamerica	1	se	300.00	1990	2,000				
Emperadores	1	s	191.64	1995	2,000		24.98	19.9	5.92
Guaycura p/a	1	s	138.12	1975	1,900	24.10			4.10
Ampliación Guaycura p/a	1	s	166.23	1978	1,800	24.50			3.90
Fundadores Norte	1	se	282.00	1982	1,500				
Residencial Agua Caliente	1	s	270.00	1987	1,500				
6	1	s	266.50	1969	1,500				
Salvatierra	1	s	236.84	2000	1,500				
Aztecas p/b	1	s	126.77	1993	1,500				
Aztecas p/a	1	s	262.00	1993	1,500				
10	1	s	112.00	1972	1,500				
Reforma p/a	1	se	251.00	1972	1,500				
Juárez	1	se	190.60	1970	1,400				
4'	1	s	185.00	1968	1,400				
Latinos	1	s	234.69	1984	1,400				
Hacienda	1	s	-----	1999	1,200				
Lomas la Presa	1	s	181.16	1991	1,200		19.80	19.80	3.03
Latinos 1	1	s	235.00	1984	1,200				
Lomas Verdes p/a	1	s	138.00	1989	1,150				
4	1	s	160.00	1968	1,130		16.80	16.70	4.70
Jardines del Rubí	1	s	276.28	1975	1,000				
Britania	1	e	127.00	1994	1,000				
Herradura	1	s	191.50	1993	1,000				
Montebello	1	s	126.50	1975	1,000		25.10	15.10	2.96
Fundadores 2	1	s	205.00	1992	1,000				
Las Cruces	1	s	303.00	1998	1,000				
Cárdenas 2	1	s	189.00	1991	1,000				
Miramar	1	s	198.00	1991	1,000				

Name of Tank	Physical State	Type	Elevation (m)	Year of Construction	Capacity (m ³)	Dimensions			
						Diameter	Length	Width	Height
4 1/2	1	se	208.00	1968	1,000				
Divina Providencia	1	s	189.75	2000	1,000				
Nuevo Milenio	1	s	262.00	2001	1,000				
Mariano Matamoros Sur	1	s	253.00	1991	1,000		15.29	15.29	5.00
Ejido Francisco Villa p/b	1	s	203.00	1992	1,000		15.53	15.53	5.10
Aztecas p/m	1	s	176.00	1993	1,000				
Las América	1	s	191.30	1994	1,000				
Florida 4 Sección 2	1	s	220.00	1998	1,000		15.40	15.30	5.10
El Niño p/a	1	s	-----	2001	1,000				
Jardines Mesa	1	s	188.55	1992	1,000				
Camino Verde i	1	s	219.18	1995	1,000		16.00	16.00	5.00
Poblado el Tecolote	1	se	349.36	1992	1,000				
Soldados	1	s	316.00	1970	960				
3-b Pasteje	1	se	129.00	1970	900		20.95	20.6	2.65
Burócratas	1	se	200.00	1975	800				
Consulado	1	se	60.00	1972	800				
Chapultepec 8 Seccion	1	se	160.00	1967	800		24.80	14.85	2.50
Padre Kino	1	s	102.02	1977	800	14.85			4.90
Presidentes p/a	1	s	161.82	1983	800				
La Presa	1	s	160.00	1981	800		22.15	21.25	-----
Villas Baja California.	1	se	170.00	1989	800		28.00	12.00	2.38
Villas Baja California. p/m	1	s	158.00	1989	800		20.00	16.00	2.80
Indeco Universidad	1	s	146.00	1981	600		15.90	11.70	3.00
Lomas Colorado	1	s	105.00	1978	600				
El Niño p/b	1	s	-----	2001	600				
Villas Baja California p/a	1	s	197.22	1989	600		20.00	11.00	3.10
Venezolanos	1	s	200.00	1986	600		16	12	3
Laderas de Monterrey	1	s	161.00	1996	590				
22-a	1	se	122.00	1967	500		18.10	13.10	2.50
22-b	1	se	122.00	1967	500				
Olivos p/a	1	se	163.00	1970	500				
Colinas Agua Caliente p/a	1	se	236.00	1975	500				
Florida 3	1	s	219.70	1993	500		17.50	6.50	4.00
Loma Dorada	1	s	125.00	1996	500				
Emiliano Zapata y San	1	s	-----	1998	500		9.70	9.70	3.57
70-76	1	s	150.00	1976	400		15.54	10.55	2.90
Colinas Agua Caliente p/b	1	se	185.00	1975	400				
Capistrano p/m	1	se	136.90	1983	400				
Capistrano p/a	1	se	183.40	1983	400				
Presidentes p/a	1	s	175.00	1983	400				
Brasileños	1	s	185.00	1986	400		16.50	12.30	3.00
Trigarante	1	s	165.50	1986	400		16.01	12.01	3.1
La Ladrillera	1	s	-----	2001	350				
Villa Floresta p/m	1	se	127.00	1976	325		14.80	10.40	2.50
Privada Acapulco	1	s	124.00	1970	300				
Venustiano Carranza	1	s	107.00	1997	300				
Lomas Conjunto p/m	1	s	158.24	1970	300		9.50	9.50	2.48
Guanajuato	1	s	125.00	1988	300		10.05	10.05	3.65
La Gloria	1	s	306.07	1994	300				
Ejido Francisco Villa p/a	1	s	226.20	1992	215		10.20	10.20	2.50
Cárdenas 3	1	s	210.50	1993	215				
Del Río p/b	1	se	94.82	1970	200		9.55	9.30	2.80
Echeverría	1	s	231.00	1990	200				
Remosa	1	s	200.50	1990	200				
Doctores	1	s	130.00	1970	200				
Villa Floresta p/b	1	s	75.00	1976	200		10.00	5.00	1.78
Lomas Conjunto p/a	1	s	185.00	1970	200		9.20	10.50	2.50
Mariano Matamoros p/b	1	s	217.00	1991	100		1041	5.18	2.20
Mariano Matamoros Hidro	1	s	206.00	1991	100		10.45	5.40	2.25
Aguaquito	1	s	225.00	1984	50				
Mezclador	4	s	20.00	1968	7,900				
Fundadores 1	4	s	205.00	1988	2,000				
Juárez 2	4	se	205.00	1993	2,000				
Cárdenas 1	4	se	159.00	1982	2,000				
Chapultepec 9 Seccion	4	s	221.16	1975	1,400				
Villas Baja California p/b	4	se	133.00	1989	1,000		17.80	13.80	4.35
4'	4	se	185.00	1968	900				

Name of Tank	Physical State	Type	Elevation (m)	Year of Construction	Capacity (m ³)	Dimensions			
						Diameter	Length	Width	Height
Lomas Verdes p/b	4	se	115.00	1989	800				
Altamira	4	se	168.00	1982	650		14.63	9.65	4.95
Cacho p/a	4	s	118.00	1970	300				
Guerrero	4	s	126.00	1968	300		10.90	10.90	3.80
Mezclador	5	e	20.00	1968	17,000				
Britania	5	e	127.00	1970	4,480				
Foviste 5 Etapa	5	se	135.00	1978	2,400				
San Antonio del Mar 1	5	s	82.00	1975	2,000				
San Antonio del Mar	5	s	60.00	1975	2,000				
Otay Universidad 1	5	s	147.00	1981	1,600	24.25			4.85
Lago Redondo	5	s	130.00	1976	1,600	19.41			5.65
Álamos	5	s	87.30	1975	1,500		21.72	17.62	4.40
Ampliación Guaycura p/b	5	s	80.00	1978	1,200				
Otay Universidad II	5	se	147.00	1981	1,100		29.90	12.85	3.20
Chichimecas	5	se	132.00	1982	900				
Foviste 5 Etapa	5	se	132.86	1978	900				
Fidel Velásquez	5	s	89.50	1984	760				
Patrimonio Murua	5	s	40.00	1984	750				
4	5	s	160.00	1968	700				
Villa Floresta	5	s	20.68	1978	500				
Plan de Iguala	5	s	115.00	1984	500				
Calle 8	5	se	115.40	1970	400				
Obrera	5	e	264.00	1982	400				
Morelitos	5	se	80.00	1968	350		16.18	10.98	4.00
Independencia	5	se	90.00	1968	340		30.70	25.80	4.20
Villa Floresta p/a	5	se	127.00	1976	325		15.19	8.24	2.60
Las Californias	5	s	150.00	1979	300				
6'	5	s	234.00	1969	300				
Lago p/b	5	s	55.00	1976	300				
Mirador Viejo	5	s	182.40	1970	250				
Jardines del Rubí Viejo	5	s	255.00	1970	200				
Privada Acapulco	5	s	124.00	1970	200				
Roma	5	se	118.00	1970	200				
Guaycura p/b	5	e	59.00	1975	200				
Presidentes	5	e	120.00	1983	200				
Los Laureles	5	se	170.00	1982	190				
Panteón	5	se	160.00	1968	170				
Olivos p/m	5	s	153.00	1970	120				
Madero Sur	5	se	180.00	1970	80				
Fidel Velásquez	5	se	75.00	1984	40				

Nota :

1.- Operating

4.- Out of Operation

5.- Definite discharge

Note: The information obtained on the tank dimensions diagnosis is only until December 2001.

Table I-5 Installed Hydropneumatic Equipment, Installment and Capacity Periods			
Hydropneumatic	No. of Equipments	Equipment Potential (HP)	Total Potential (HP)
Loma Bonita	2	5	10
Sánchez Taboada	2	3	6
Ciudad Misericordia	2	7.5	15
Hermosillo	2	7.5	15
Tecolote	2	7.5	15
Las Cruces Parte Alta	2	5	10
Miramar	2	7.5	15
Venustiano Carranza	2	15	30
Colonia Lagunitas.	2	5	10
Obrera 3a. Sección	2	10	20
Chapultepec California	2	15	30
El Pipila	2	10	20
Pacífico	3	3	9
Ed. #1 Blvd. Benítez	2	7.5	15
Cañón del Sáenz.	2	15	30
Resid. Agua Caliente	2	15	30
Ejido Mazatlán Rosarito	2	7.5	15
Lomas del Valle.	2	7.5	15
Rubi Terrazas	2	10	20
Florido 4ta. Sección	3	3	9
Tanque Otay	2	5	10
Lomas de Matamoros	2	7.5	15
Capistrano Parte Alta	2	5	10
Primo Tapia	2	5	10
Ladrilleras Puerto Nuevo	2	15	30
Hidroneumático	2	7.5	15
Total			429

Note: In all cases, reserve equipment is accounted for and the rest operate continually.